

REMARKS

Claim Rejections - 35 USC 112 First and Second Paragraphs

Claims 23 and 40 were rejected under 35 USC 112, first and second paragraphs. These rejections should be withdrawn in light of this Amendment.

Claim Rejections - 35 USC 103

Claims 18-23 and 36-40 were rejected as being obvious over Shipwash in view of Nathan. This rejection is respectfully traversed.

The Examiner states that “Shipwash also teaches the apparatus comprises an outlet channel in fluid communication with the reaction chamber; namely, Figure 22 *wherein the outlet channel is one of the reaction channels* (paragraphs 0482-0484).” See page 5, lines 5-8, of the Action; emphasis added. In short, the Examiner is reading the limitation “an outlet channel in fluid communication with the reaction chamber” to read on *one of the reaction channels of the reaction chamber of Shipwash*. This interpretation of the limitation “an outlet channel in fluid communication with the reaction chamber” is incorrect as the outlet channel is separate and distinct from the reaction chamber of the apparatus of claimed invention, and this aspect of the apparatus of the claimed invention is clarified by the newly added limitation “wherein the first and second Raman detection units are distinct and separate from the reaction chamber and are positioned before and after the reaction chamber” in claims 18 and 36. This newly added limitation is supported by paragraph [0038] of the specification, which states that “duplicate detection units 12 can be position before and after the reaction chamber 11,” the “template 13, primer 16 and polymerase 15 can be confined to the reaction chamber 11,” and “the nucleotides 17 are detected in a separate compartment from the template 13, primer 16 and polymerase 15.”

A careful review of Shipwash and Natan indicates that they do not disclose that “the first and second Raman detection units are distinct and separate from the reaction chamber and are positioned before and after the reaction chamber” as recited in claims 18 and 36. In short, Shipwash

and Natan fail to teach or suggest the claimed invention *as a whole*. Thus, independent claims 18 and 36, and all other claims that depend directly or indirectly from claims 18 or 36, should be allowed.

In making the rejection of claims 19 and 37, the Examiner has stated that “Shipwash also teaches each Raman detection unit is capable of detecting at least one nucleotide at the single molecule level (paragraph 0168).” See page 6, lines 4-6, and page 9, lines 14-16. Paragraph [0168] of Shipwash states:

[0168] Laser-induced fluorescence is generally the detection method of choice for microarray and microflow systems. There are many examples in the literature describing single molecule detection using laser-induced fluorescence as a detection method. For example, spatially resolved detection may be achieved using confocal laser scanners or high sensitivity imaging detectors such as CCD cameras.

Where does paragraph [0168] if Shipwash disclose “wherein each Raman detection unit is capable of detecting at least one nucleotide at the single molecule level” recited in claims 19 and 37? Applicants respectfully submit that the limitation of claims 19 and 37 is not disclosed in paragraph [0168] of Shipwash.

New claims 41 and 45 are supported by claims 18 and 36 and paragraph [0038] of the specification, which states “where concentrations of nucleotides 17 entering the reaction chamber 11 are known, a single detection unit 12 can be positioned downstream of the reaction chamber 11 to measure nucleotide 17 concentrations exiting the reaction chamber 11.” New claims 42-44 and 46-48 are supported by claims 37-39. New claims 49-52 are supported by paragraph [0038] of the specification, which states that the “template 13, primer 16 and polymerase 15 can be confined to the reaction chamber 11.”

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In view of the above amendment, applicant believes the pending application is in condition for allowance.

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